

[illegible]

For the present the NSF budget has not been subjected to overall reductions; NSF gets its appropriations this year and did not have

According to a report of his comments (*Indust. Res. Develop.*, Dec. 1982): "Our result of the abundant Federal funding of past decades ... (argued Keyworth) ... is the feeling among researchers that they need not pay attention to the profit incentive. ... The cornucopia of 1960's science plainly is gone forever; the new order, even in basic research, involves a truly hard-nosed evaluation of the real value of individual research projects." In the same report, however, George Keyworth was quoted as saying that the United States has "The strongest basic research enterprise that the world has ever known ... a resource of such importance that there's no question about our high priority to protect and maintain it" (*Indust. Res. Develop.*, sup.).—PMH

Scientists may have found a way to tap the earth's magnetosphere to help power global communications. A team of scientists and engineers from Lockheed's Palo Alto Research Laboratory, from Stanford University, and from the U.S. Office of Naval Research reported at the recent AGU Fall Meeting/ASL Winter Meeting that they have confirmed a long-held theory that man-made very low frequency (VLF) radio waves move along the earth's magnetic field lines to great altitudes within the magnetosphere and produce elec-

The book is divided into four sections. In the first section, the physical and geochemical nature of water, is reviewed as well as the physical chemistry of solutions and mineral equilibria. Mathews pays particular attention to near-surface geochemical processes and

SEEP scientists employed three Navy VLF transmitters and one operated by Stanford Siple, Antarctica, to send a predetermined pattern of signals—8 seconds on, 2 seconds off—into the magnetosphere. The signal pattern traveled along the earth's field lines and were then 'duplicated in the form of electrons entering the ionosphere over a region several hundred miles long,' Reagan said. 'When these freed electrons enter the ionosphere, they create a miniature aurora borealis—small light emissions—that can be detected by an airglow photometer,' Reagan noted. 'In addition, X rays are released that can be picked up by a mapping X ray spectrometer.'

Reagan said that ongoing magnetospheric research will 'help us better understand the physics of the magnetosphere and the sub auroral region of the radiation belts. When we fully understand this process, there is the potential of expanding communications into the region.'

The working group on the IAHS reorganization, chaired by G. Kouřáček, produced a draft report that was discussed at the July 1982 IAHS First Scientific General Assembly at Exeter. As a result of those discussions in commissions, in the IAHS bureau, and in the IAHS plenary sessions, proposals will be made at the Hamburg meeting to amend the IAHS statutes and bylaws. In accordance with the existing statutes and bylaws, details of the proposed changes are contained in the December issue of the *IAHS Newsletter*.

Cinco Lomnitz, professor of seismology at the National University of Mexico and a member of the Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas, has been appointed corresponding member of the Academy of Sciences of Chile. He is a member of the Mexico Academy of Sciences.

Hans A. Panofsky, an AGU Life Fellow, retired September 1 as Evan Pugh Professor Emeritus of Astrophysical Sciences at The Pennsylvania State University. Contributions are invited to the Hans A. Panofsky Scholarship Fund, established at Penn State to provide scholarships for outstanding students in meteorology. Checks payable to The Pennsylvania State University and designated to the Panofsky Fund may be sent to the Office of Gifts and Endowments, Old Main, University Park, PA 16802.

The second chapter emphasizes rock-water interactions and the chemical factors affecting the distribution, nature, and concentration of various chemical and ionic species. The author presents material gleaned from a variety of sources within the context and framework of an interrelated atmospheric-rock composition-biologic processes model and discusses the roles of the relevant parameters in water quality determinations. The various biologic processes operating in the soil-near surface environment are shown to influence ground gas composition, which in turn is related to the causal water quality controls. One gains an appreciation of the degree to which a mixture soil profile, and its associated microbiologic community, affects the ultimate ground water chemistry. Researchers concerned with the reclamation of disturbed lands would find this section (and the adjoining chapter 3) most useful in understanding the various interrelationships underlying the various biologic processes, the importance of vegetation in the total reclamation procedure, and the direct and indirect effects of organic matter on water quality. Mathews provides the reader with a refreshing insight into these near-surface processes and the important role they play in affecting water chemistry. Throughout, the author uses numerous relevant case histories to illustrate the pertinent water quality variations and mechanisms of control. The chapter concludes with a good overview of the man-made factors that affect water quality that range from the indirect effects of changes in the composition of the atmosphere to the direct effects of discharging

A relatively brief attempt is made to characterize groundwater quality in terms of the chemistry of the aquifer. Understandably, the author restricts his attempts to broad generalizations and confines categories to regional hydrogeologic units. Nevertheless, distinctions between the water quality variations are

The final chapter, dealing with the classification of groundwater and methods of presenting data, is an excellent and complete review of the various techniques available to perform these functions. A wide range of pictorial and multivariate diagrams are discussed and illustrated to provide the reader with an appreciation of the strengths and weaknesses of the various methods of depicting water quality data and classifying groundwater. Following, water classification schemes based on origin, dissolved constituents, and potential use are presented and are reviewed in terms of applicability for a particular use. Errors in maximum permissible concentrations for some dissolved constituents in potable water could have been avoided by using more re-

Water Resources Monograph 5

Groundwater Management:

the use of numerical models 1980

Yehuda Bouchiat
John Bredehoeft
Barbara Andrewa
David Holtz
Scott Sebastian
editors

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cent U.S. drinking water standards (the author cites the 1962 standards, which have undergone several revisions). These minor points aside, this chapter contains a comprehensive and thorough discussion of methods used to illustrate and group water quality data into meaningful classifications.

One major advantage this book has over its American counterparts is the degree to which foreign literature is cited and used in the discussions. Of the approximately 935 references, more than half are foreign. Thus, in addition to an exposure to the studies reported in the foreign literature, the reader gains an appreciation of how the European school discusses the causal effects of water quality variations.

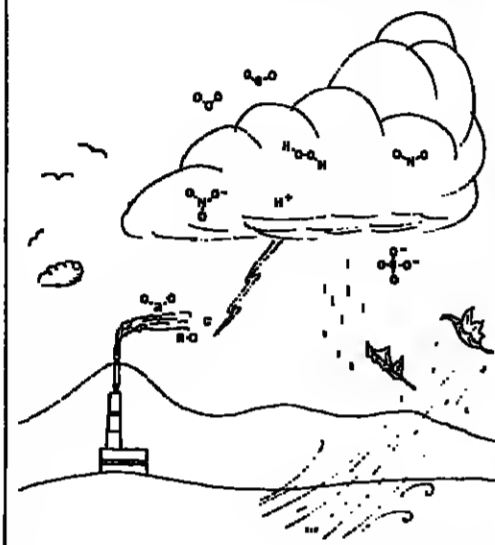
Upon this blend of an American and European information base, Matthews develops some interesting and novel insights into the properties of groundwater. This book is recommended as an addition to your library of reference texts.

Frank T. Carruccio is with the Department of Geology, University of South Carolina, Columbia, S.C.

Geophysical Monograph 26 ISBN 087590-051-8 1982

Heterogeneous Atmospheric Chemistry

David R. Schryer, editor



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POSITIONS AVAILABLE

Texas A&M University/Geology Positions. The Department of Geology invites applications for several tenure-track faculty positions effective September 1983. Preferred specialties are in: 1. *Engineering Geology*; 2. *Clay Mineralogy* with emphasis on sedimentation, geochronology, and diagenesis; 3. *Stratigraphy* with emphasis on the relationship between sedimentation and stratigraphy to structural setting and tectonics; 4. *Structural Geology* with emphasis on theoretical, experimental, petrographic or field studies, such as the relationship between deformation and structural setting and tectonics.

The Department offers programs leading to B.S., M.S., and Ph.D. degrees in Geology. The department is in the College of Geosciences, with strong interactions with the departments of Geophysics and Oceanography.

Qualified persons should submit a resume, names of three references, and a statement of research interests to: Robert L. Stanton, Head, Department of Geology, Texas A&M University, College Station, Texas 77843.

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University of Kentucky/Department of Geology. The Department of Geology invites applications for two tenure-track Assistant Professor level positions. Both appointments are for soft rock geology with preference for some experience in industry and interests including one or more of the following: sedimentology, stratigraphy, carbonate petrology, organic geochemistry, or isotope geology. The successful applicant will be required to participate in teaching, research, and graduate studies. Familiarity with quantitative techniques is desired. Department has access to a variety of computational devices. Academic vitae and names of three references should be sent to Dr. Lyle S. Bendall, Chairman, Search Committee, 321 Patterson Office Tower, University of Kentucky, Lexington, Kentucky 40506-0027. Closing date is March 1, 1983. Both appointments are to commence in August 1983, but an earlier date may be considered. Salary is negotiable.

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Portland State University/Department of Geology. The Department of Geology invites applications for two tenure-track Assistant Professor level positions. Both appointments are for soft rock geology with preference for some experience in industry and interests including one or more of the following: sedimentology, stratigraphy, carbonate petrology, organic geochemistry, or isotope geology. The successful applicant will be required to participate in teaching, research, and graduate studies. Familiarity with quantitative techniques is desired. Department has access to a variety of computational devices. Academic vitae and names of three references should be sent to Dr. Lyle S. Bendall, Chairman, Search Committee, 321 Patterson Office Tower, University of Kentucky, Lexington, Kentucky 40506-0027. Closing date is March 1, 1983. Both appointments are to commence in August 1983, but an earlier date may be considered. Salary is negotiable.

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Scientific Basis for Nuclear Waste Management

J. J. Monre (ed.), vol. 3, Plenum, New York, xvi + 632 pp., 1981, \$49.50.

Reviewed by Newell J. Trask

As a result of the Reagan administration's commitment to nuclear energy as a significant future energy source and of attempts by the 97th Congress to grapple with legislative aspects of the problem, increased attention has focused recently on the problem of safely disposing of nuclear waste. These proceedings of the Third Symposium on Nuclear Waste Management of the Materials Research Society provide insight into the status of investigations on the subject as of late 1980. As with volumes 1 and 2 of this series, the 77 contributions are all short progress reports of ongoing research with the emphasis fittingly on materials science. Readers who wish extensive background material on the problems of nuclear waste management and disposal, details of specific sites, or overviews of the programs of research in this country and abroad will have to look elsewhere.

The prevailing strategy for waste disposal in mined repositories in most countries uses a system of independent barriers that block or resist the migration of radionuclides away from the repository. The principal barriers are a waste package, a conservative designed repository, and a geologic environment conducive to waste isolation. In terms of potential processes, the main ones taking place within the three barriers are (1) leaching of the waste and reaction with fluids which permeate the waste package; (2) reaction, precipitation, or solution of radionuclides with ambient waters and minerals at initially elevated temperatures; and (3) transport with attendant interaction along hydrologic flow paths at low concentrations and temperatures in the far field, respectively.

These proceedings devote the most space to the first line of defense: the waste form and the repository. In addition to physical descriptions of waste forms and production processes, there are sections on leaching, radiation effects, and natural analogues. Both commercial and defense high level waste are included, and there is a section on non-high-level waste. Within the category of high-level waste, borosilicate glass and alternative waste forms, including spent fuel, receive approximately equal treatment.

Compared with the earlier volumes, these proceedings devote increased space to the mechanisms of waste-form leaching. Several papers describe highly sophisticated surface and near-surface analytical techniques being used to study the reaction layer that forms on the solid waste during exposure to an aqueous environment. Much remains to be learned about these mechanisms, especially at elevated temperatures and in the presence of additional phases used for canisters or overpacks. A series of papers describes a variety of metallic, ceramic, and polymeric materials under consideration for use as waste containers; other papers discuss the possible use of clays, zeolites, and other materials as backfill. The effects of prolonged radiation doses on a variety of glasses and minerals are also explored, but firm conclusions about these effects are not yet possible.

The diversity and complexity of the research reports emphasize how difficult it is to simulate the functioning of an underground radioactive waste repository for time periods of thousands of years. Decision-makers must rely on simplified but conservative models of repository performance reported on in other publications. These models predict environmental impacts from decommissioned repositories well within acceptable limits.

ANNOUNCEMENT
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New Publications

Items listed in New Publications can be ordered directly from the publisher; they are not available through AGU.

Advances in Hydroscience, vol. 13, V. T. Chow (Ed.), Academic, New York, xi + 303 pp., 1982, \$53.00.

Boundary Element Methods in Solid Mechanics, S. L. Crouch and A. M. Starfield, George Allen & Unwin, Boston, Mass., xii + 322 pp., 1983, \$30.00.

The Boundary Integral Equation Method for Porous Media Flow, J. A. Liggett and P. L. F. Liu, George Allen & Unwin, Boston, Mass., xi + 265 pp., 1983, \$35.00.

Circulation in the Coastal Ocean, C. T. Casanovi, Elsevier, Amsterdam, 1982, 352 pp., \$32.50.

Comparative Crystal Chemistry, R. M. Hazen and L. W. Finger, Wiley-Interscience, New York, xv + 231 pp., 1982, \$49.95.

Geophysical Mapping of Buried Precambrian Rocks in the Cloncurry Area, Northwest Queensland, A. J. Mutton and R. A. Almond, Rep. 210, BMR Mineral Resources, Canberra City, A.C.T., Australia.

Migration of Geophysical Data, E. A. Robinson, International Human Resources Development Corp., Boston, Mass., x + 208 pp., \$34.00.

Mount St. Helens Eruptions of 1980: Atmospheric Effects and Potential Climatic Impact, R. E. Newell and A. Deepak (eds.), NASA, Washington, D.C., xxi + 119 pp., 1982, \$6.00. Order from Department 38-F, Superintendent of Documents, Washington, D.C. 20402; refer to stock number 033-000-00857-1.

Nor Any Drop to Drink, W. Ashworth, Summit, New York, 272 pp., 1982, \$5.95.

Petrology of the Ocean Floor, R. Hekinian, Oceanogr. Ser., vol. 33, Elsevier, New York, xiv + 393 pp., 1982, \$13.00.

Physical Properties of Crystals, J. F. Nye, Oxford University Press, New York, xiii + 322 pp., 1977.

Pulse Coding in Seismology, M. S. Baranovskii, International Human Resources Development Corp., Boston, Mass., vi + 89 pp., 1982.

Research Positions/Lunar and Planetary Laboratory. The Lunar and Planetary Laboratory at the University of Arizona has research positions open for Planetary Scientists, with Planetary Astronomers and Planetary Geologists being areas of greatest interest to the Laboratory at this time. Researchers at the Laboratory have access to the University's observatories, a wide range of astronomical instrumentation, a complete collection of planetary images, computers and laboratory facilities. The research ranks in the Laboratory, namely Assistant Planetary Scientist, Associate Planetary Scientist, and Planetary Scientist parallel the tenure track ranks of Assistant, Associate and Full Professor. The Laboratory is interested in making appointments at the Assistant or Associate Planetary Scientist level. These are not tenurable and not state-funded positions. Salary levels are commensurate with equivalent tenure-track ranks. Researchers in these positions will be expected to supply a significant portion of all of their salaries through their grants and contracts.

Applicants should submit a curriculum vitae, list of publications, and the names of three references by April 30, 1983, to L. L. Wilgus, Director, Lunar and Planetary Laboratory, University of Arizona, Tucson, Arizona, 85721.

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Faculty Teaching and Research Position/Institute of Marine Science, University of Alaska, Fairbanks. Research interests should include the numerical modeling of estuarine, coastal and open ocean physical oceanography in subpolar and polar environments. Participation in interdisciplinary studies is encouraged. Applicants should have an extensive background in hydrodynamics and numerical modeling. Ph.D. degree in physical oceanography is preferred (or its equivalent in training or experience). Rank and salary will be determined by experience. Candidates should send resume and names of three references to: Dr. Vernon E. Rienecker, Institute of Marine Science, University of Alaska, 99701, Closing Date March 15, 1983.

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University of Alberta/Theoretical Geophysicist. Applicants are invited for the positions of a Postdoctoral Fellow or Research Associate in the field of theoretical studies of direct and inverse problems in seismic wave propagation for complicated geological structures. The positions are available immediately and are initially for a one year period with the possible extension for a second year. The annual salary for a postdoctoral fellow position is in the \$17,000-\$19,500 range. The minimum annual salary for the Research Associate is \$24,000.

Interested applicants should submit a resume, a summary of research interests and arrange for three letters of reference to reach: Dr. F. Hron or Dr. M. Razavy, Department of Physics, University of Alberta, Edmonton, Alta., T6G 2P1, Canada.

from whom further particulars can be obtained.

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Cover. Slushflows are a common, but rarely observed, phenomenon in arctic and subarctic regions. The photograph shows the upper portion of a slushflow track in Alutian Pass, Central Brooks Range, Alaska. Approximately 30 such events have been observed in this area during the last four spring breakup periods. The slush, which is highly saturated and consequently very dense, releases instantaneously in a manner similar to slab snow avalanches. The combination of steep slopes, highly-densified material, and confinement within narrow alpine chutes produces flow rates estimated at several tens of meters per second. Evidence of super-elevation of the flow (approximately 10 m vertical) on the outside curve of the bend (left center in photo) implies it is in a supercritical state. (Photo courtesy of Lawrence J. Orsi, associate professor, Department of Geography, Indiana University.)

Chairman, Department of Geology/Louisiana State University. The Department of Geology, LSU, invites applications for the position of Professor and Chairman, to be filled during the 1983-84 academic year. We are seeking an earth scientist of national or international stature with research, academic, or industrial experience. The Department is a well-equipped, research-oriented organization with facilities that should approach parity with the best. Construction of a new Geology Building annex is scheduled to begin within one year. LSU's location and strong ties to industry make this position particularly attractive relative to the Department's growth potential.

The successful candidate must demonstrate outstanding leadership ability. Applicants should submit to the Search Committee their curriculum vitae and a statement of their philosophy of governance. They should also arrange to have three letters of recommendation sent directly to the Search Committee. Preference will be given to applications received by February 15, 1983. Applications, nominations, and inquiries should be addressed to: Clyde H. Moore, Chairman, Search Committee, Department of Geology, Louisiana State University, Baton Rouge, LA 70803.

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Department Head/Physics and Atmospheric Sciences, Drexel University. Drexel University has an outstanding individual to be Head of the Department of Physics and Atmospheric Sciences beginning Fall, 1983. Applicants should have extensive research experience and should have demonstrated appropriate leadership ability. The appointment is non-tenured and the successful applicant will be concurrently a Full Professor with tenure. Drexel is a private, technological University with an enrollment of 10,000, most of whom participate in a unique cooperative program. It is located in the West Philadelphia Community of University City, in close proximity to two other excellent institutions and a major science center. The Department of Physics and Atmospheric Sciences has 50 faculty, plus an average of five visitors per year, and 40 graduate and 60 undergraduate students. There is significant research activity in three major areas: Experimental Physics (biophysics, nuclear physics, quantum optics, solar energy, solid state physics), Theoretical Physics (atomic and molecular physics, ionospheric, numerical physics, nonlinear dynamics, nuclear physics, quantum optics, solid state physics) and Atmospheric Science (mesoscale meteorology, remote sensing of the atmosphere and satellite meteorology). Funding for research activities exceeds one million dollars per year.

Screening of applicants will begin on March 15, 1983. Nominations or inquiries should be directed to: Dr. T. K. Lim, Chairperson, Department Head Search Committee, Department of Physics and Atmospheric Sciences, Drexel University, Philadelphia, PA 19104, (215) 895-2717.

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Faculty Position/University of Hawaii. *Chemical Oceanographer/Marine Microbiologist.* The Department of Oceanography and the Hawaii Institute of Geophysics at the University of Hawaii have a joint supported, state funded, tenure track faculty position available at any level through full professor. Qualified applicants are being sought for this position with a 1983 starting date. Candidates with a strong teaching and research background with specialties in the areas of marine biogeochemistry, and marine microbiology are encouraged to apply. Research interests in the area of chemical oceanography will be considered. The applicant will be expected to supervise and support graduate students, teach graduate courses, and obtain funding for research. The Department of Oceanography and the Hawaii Institute of Geophysics have excellent research facilities housed in the new six-story Marine Science Building and the Hawaii Institute of Geophysics Building.

Two nuclear magnetic resonance spectrometers with computerized data reduction, microfilm systems, triple collectors and carbonate, silicate, and seawater extraction systems are available in addition to complete general analytical facilities including electron microprobe, SEM-TEM, atomic absorption, X-ray fluorescence and diffraction, and organic geochemical instrumentation. Applicants should possess a Ph.D. in oceanography or related earth science with at least one year of research and teaching experience. A curriculum vita, names of three references and a statement describing research objectives should be sent to Dr. Frederick A. J. Berman, Search Committee, Department of Oceanography, University of Hawaii, Manoa, 1000 Pope Road, Honolulu, Hawaii 96822. Closing date, March 1, 1983.

Geological Oceanography/University of Hawaii. The Department of Oceanography and the Hawaii Institute of Geophysics have a state-funded, tenure track faculty position available at any level through full professor in the fields of geological oceanography and marine geology. The position is with 1983 starting date. Candidates with interests in tectonics, sedimentology, or geochronology in marine systems with some experience in the Pacific Ocean are especially encouraged to apply. The Department of Oceanography and the Hawaii Institute of Geophysics have two research ships, an extensive core collection, and complete marine geophysical survey equipment including Sea Beam, R/V mapping, geochronological facilities include fully equipped, low-temperature geochemical experimental laboratories and sedimentological equipment, SEM-TEM, atomic absorption, X-ray fluorescence and diffraction, organic geochemical instrumentation and two large computers. The candidate will be expected to supervise and support graduate students, teach graduate courses, and obtain funding for research. Applicants should possess a Ph.D. in geology, oceanography or related earth science, and should have at least one year of research and teaching experience. A curriculum vita, names of three references, and a statement describing research objectives should be sent to Dr. Stanley B. Margolis, Department of Oceanography, University of Hawaii, Manoa, 1000 Pope Road, Honolulu, Hawaii 96822. Closing date, March 1, 1983.

We encourage applications from women and members of minority groups. The University of Hawaii is an equal opportunity/affirmative action employer.

Faculty Position/Northern Illinois University. The Department of Geological Sciences is seeking a research geologist with strong research background in geochronology, mineralogy, and experience in field operations. The successful candidate will be expected to carry out an extensive research program; supervise graduate students, and teach courses at both the undergraduate and graduate levels. Assistant Professor (tenure-track) rank, beginning September 1983. Possibility exists to hire at the Associate Professor level. Applicants should submit a resume and three references to: B. J. Wood, Department of Geological Sciences, Northern Illinois University, DeKalb, IL 60115, 812-462-3442.

The closing date is February 18, 1983. An equal opportunity employer.

Department of Geology/University of Washington. Possible openings for meteorologists with strong research background in atmospheric sciences, trace gas processes, atmospheric physics, and experience in field operations. The successful candidate will be expected to carry out an extensive research program; supervise graduate students, and teach courses at both the undergraduate and graduate levels. Assistant Professor (tenure-track) rank, beginning September 1983. Possibility exists to hire at the Associate Professor level. Applicants should submit a resume and three references to: B. J. Wood, Department of Geological Sciences, Northern Illinois University, DeKalb, IL 60115, 812-462-3442.

THEORETICAL OR EXPERIMENTAL SPACE PLASMA PHYSICISTS

NASA-MARSHALL SPACE FLIGHT CENTER
Huntsville, Alabama 35812

Two positions in theoretical or experimental space plasma physics are available in the Magnetospheric Physics Branch of the Space Science Laboratory at NASA's Marshall Space Flight Center. Either theoretical or experimental backgrounds will be considered with a preference given to theoretically oriented researchers to complement the extensive experimental activities of the branch. The Magnetospheric Physics Branch is involved in the analysis of low-energy plasma data from the ISEE, SCATHA, and Dynamics Explorer satellites, from sounding rockets, and from the Space Shuttle (STS-3). In addition, the group is presently carrying out the joint development of a variety of active space plasma experiments that will be flown on Spacelab One, Two, and Six.

Salaries range from \$34,930 to \$41,277 per annum, depending on experience.

Interested applicants may contact Dr. Charles R. Chappell at the Marshall Space Flight Center (205-453-3036). Forward resumes to the following address not later than March 1, 1983:

NASA-Marshall Space Flight Center
Space Science Laboratory
Attn: Dr. Charles R. Chappell, ES51-R2
Huntsville, AL 35812



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Faculty Positions/University of Washington. The Department of Physics and Astronomy anticipates one or two openings for tenure-track assistant professors or visiting professors of any rank in August 1983. Preference will be given to experimentalists in any area for the tenure-track positions. Current research interests include astrophysics, atomic, condensed matter, elementary particle, nuclear, plasma, and space physics. The positions involve undergraduate and graduate teaching, guidance of research students, and personal research. Interested persons should send a resume and a statement of research interests, and have three letters of recommendation sent to Search Committee, Department of Physics and Astronomy, The University of Washington, Seattle, WA 98195.

Position 2. Possible opening for geologist with strong quantitative, theoretical background as well as commitment to field related studies. We are particularly interested in the area of economic geochronology. Successful candidate will be expected to carry out a rigorous research program as well as to contribute to teaching responsibilities at both the undergraduate and graduate level. Assistant Professor (tenure-track) rank, beginning September 1983. The position is supported at the 50% level by the department, and would require the successful applicant to provide up to 50% of his/her support from research grants or other sources. This is a non-tenured faculty position at the rank of Research Assistant Professor. Candidates should have a record of successful research in mineralogy and geochronology involving use of the electron microprobe. The position requires supervision and operation of the microprobe facilities, and teaching one course. This position will be available after January 1, 1983.

Position 3. Electron microprobe specialist. This position is supported at the 50% level by the department, and would require the successful applicant to provide up to 50% of his/her support from research grants or other sources. This is a non-tenured faculty position at the rank of Research Assistant Professor. Candidates should have a record of successful research in mineralogy and geochronology involving use of the electron microprobe. The position requires supervision and operation of the microprobe facilities, and teaching one course. This position will be available after January 1, 1983.

Hydrogeology. The Department of Geology at Northern Illinois University has an opening for a senior, research-oriented scientist to head a new water resources research group. The position is tenure-track at the rank of Associate or Full Professor.

The successful candidate will chair a search committee responsible for recruitment of additional, anticipated faculty in environmental and water-related sciences. This group, together with current faculty, will have primary responsibility for a Ph.D. program in hydrogeology, geochemistry/hydrogeology/environmental sciences.

Available facilities include a departmental computer (Harris 300), gas and soil-source mass spectrometry, atomic absorption, and a wide range of geophysical equipment for both surface exploration and down-hole logging.

Please send resume and the names and addresses of three references to: L. D. McGinnis, Dept. of Geology, Northern Illinois University, DeKalb, Illinois 60115.

Northern Illinois University is an affirmative action/equal-opportunity employer.

University of Washington/Meteorologist. Possible openings for meteorologists with strong research background in atmospheric sciences, trace gas processes, atmospheric physics, and experience in field operations. The successful candidate will be expected to carry out an extensive research program; supervise graduate students, and teach courses at both the undergraduate and graduate levels. Assistant Professor (tenure-track) rank, beginning September 1983. Possibility exists to hire at the Associate Professor level. Applicants should submit a resume and three references to: B. J. Wood, Department of Geological Sciences, Northern Illinois University, DeKalb, IL 60115, 812-462-3442.

First Announcement International Symposium on Deep Structure of the Continental Crust: Results from Reflection Seismology

The conference will be held during June 28, 27, 28, 1984, on the Cornell University campus in Ithaca, New York. The technical sessions will cover, amongst others, the following topics:

- Results of seismic reflection profiling of the deep continental crust in countries throughout the world.
- Structure of orogenic belts.
- Structure of continental rifts.
- Nature of the Moho.
- Mechanisms of continental excretion.
- State-of-the-art techniques in deep seismic reflection profiling.

A comprehensive proceedings of the conference will be published.

Steering Committee of the conference: —Muwila Barazangi, Coordinator, Department of Geological Sciences, Cornell University, Ithaca, New York 14853. Telephone: (607) 255-6411. Telex: No. 937478.

—Albert Balfr (Rice University).

—Robert Hamilton (U.S. Geological Survey).

—Leonard Johnson (U.S. National Science Foundation).

—Robert Phillips (Princeton University).

—Donald Turcotte (Cornell University).

For additional information concerning submission of abstracts and/or to attend the conference please contact the Coordinator. Participation may be limited.

spheric Sciences; Geomagnetism and Palaeomagnetism; Hydrology; SPR-Solar and Interplanetary Physics; SPR-Cosmic Rays; and Volcanology, Geochemistry, and Petrology)

